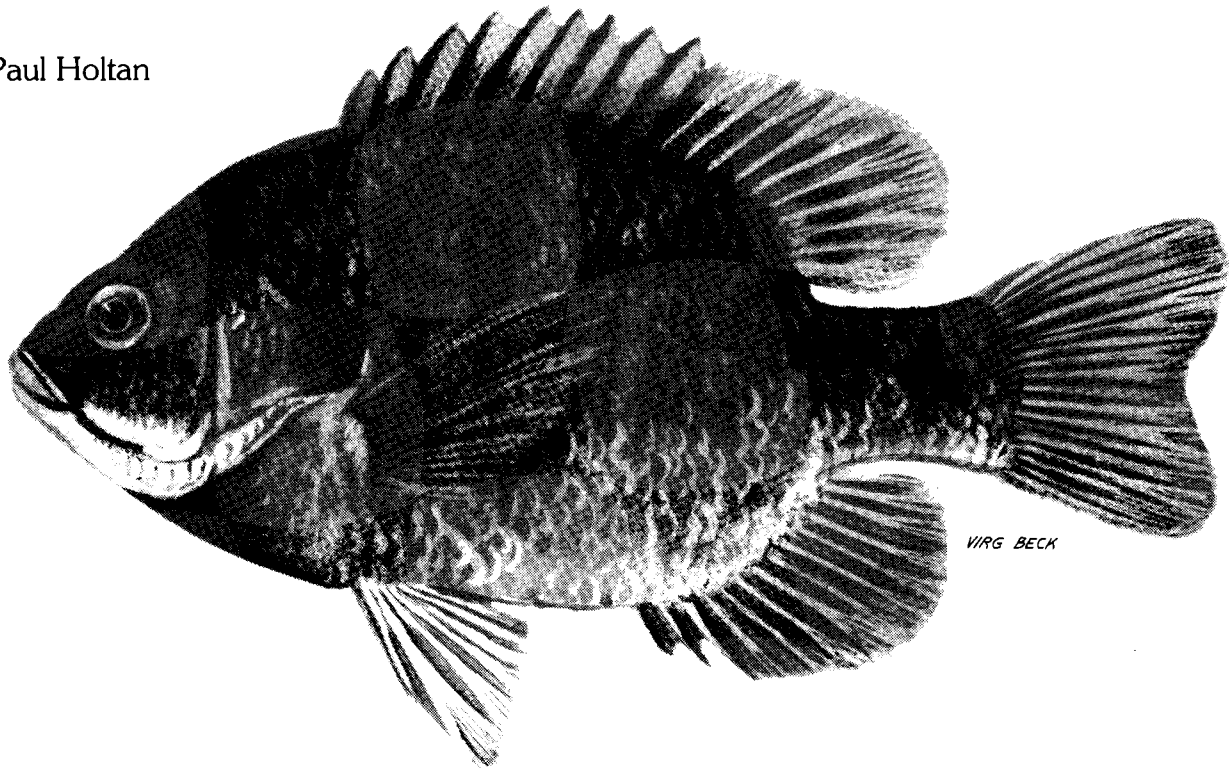


# BLUEGILL

(*Lepomis macrochirus*)

By Paul Holtan



## Common Names

Bluegill, bluegill sunfish, northern bluegill sunfish, common bluegill, blue sunfish, bream, blue bream, bluegill bream

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*"...the fight does not begin until the fish finds that it is hooked, but from then on the fight is of the most vigorous kind, and is kept up to the end with a persistency and viciousness that make the bluegill 'the gamest of all fishes for its size' "*

— David Jordan and Barton Evermann  
*American Food & Game Fishes*, 1905

A scrappy little fighter and an excellent eating fish, the bluegill is probably one of the most popular sport fish in Wisconsin; it is certainly one of the most abundant. Bluegills occur in most state waters from midsize streams to almost all ponds, lakes and rivers. In many lakes, bluegills are more

plentiful than any other species of fish. For the angler, however, the ability for bluegills to thrive and multiply is a mixed blessing: while there are a lot of them around to fish for, bluegills can easily overpopulate a lake, especially a small one, resulting in **stunted** fish (shortened growth due to overpopulation).

Bluegills are just under half as deep as they are long, and they are very narrow, with even the largest of the species under 1-inch thick. The bluegill is aptly classified a panfish. Looking at one from the side, it is compressed, almost disc-shaped, like a frying pan (Fig. 1). The panfish shape is fitting, since that is precisely where most anglers intend on putting the bluegills they catch. White, flaky bluegill flesh is very low in fat, with a clean, crisp flavor.

As tasty as bluegills are to eat, that is not the only reason they are a popular sport fish. The same deep, narrow shape that makes bluegills ideally suited for the pan is responsible for their reputation as spunky contenders at the end of a line. Although the species averages only 5 to 7 inches in length, a bluegill will turn its broad side to an angler after being hooked, swimming at right angles and putting up a stubborn fight.

This combination of fight and flavor has helped make the "gamest of fishes for its size" a favorite among Wisconsin anglers.

## Identification

An iridescent blue color on the lower portion of both the jaw and **operculum** (gill cover) give the bluegill its common name. Trying to identify the species by color, though, can be unreliable. Bluegills take on different hues depending on factors like age and sex of the fish, type of water, and the season of the year. Darker water yields darker bluegills with olive to black backs that get lighter toward a yellowish belly. Clearer water produces bluegills with blue-green backs giving way to white bellies. Males have brighter colors than females, especially during breeding, when they may have orange to rusty-red breasts, although immature males have white breasts.

Bluegills have five to nine dark, vertical bands running down their sides. The bands get lighter as they go down the side, disappearing near the belly.

The bluntly-pointed bluegill head has a small mouth that slants down into the jaw, not quite reaching as far back as the large, dark eye. The two spiny-ray **dorsal** (back) fins on the bluegill are continuous, so they appear as one fin. The front dorsal fin has 10 **spines** (stiff, sharp fin supports) and the rear dorsal fin has 10 to 12 **rays** (flexible, divided fin supports). Another distinguishing characteristic of the bluegill is a prominent dusky round spot on the rear dorsal fin. A similar spot sometimes develops on the **anal** (bottom, rear) fin. The **caudal** (tail) fin has a shallow fork and rounded tips. Bluegills have **ctenoid scales** (scales with a row or rows of small teeth on the exposed edge) covering their bodies, including the head and gill covers.

The bluegill is in the sunfish family (*Centrarchidae*) which also includes largemouth bass, smallmouth bass, rock bass, crappie, pumpkinseed and other sunfishes. Bluegills and pumpkinseeds are very similar and occasionally crossbreed. The two species can be distinguished by their flexible black "ear flaps" on the back edge of the operculum. Bluegills have solid black ear flaps while pumpkinseeds have a distinctive scarlet spot on their black ear flaps (Figs. 1 and 2).

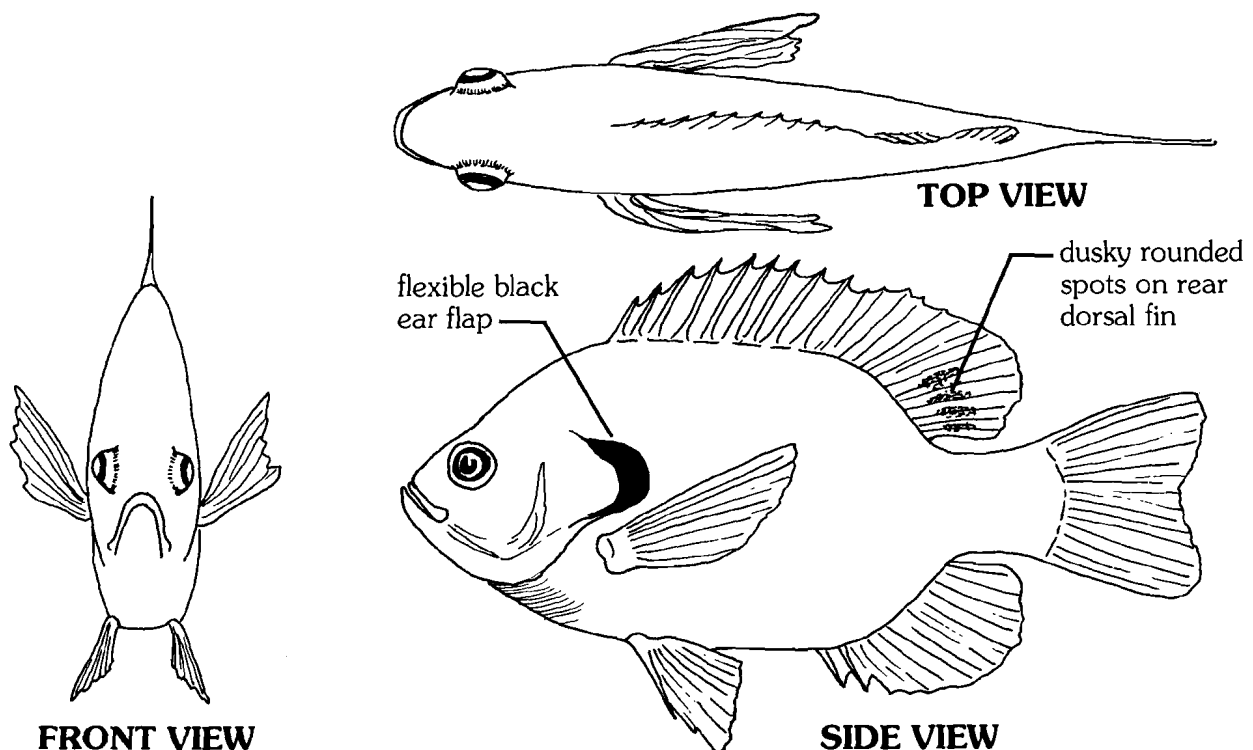


Figure 1. The shape of the bluegill resembles a pan. Thus it is called a panfish.

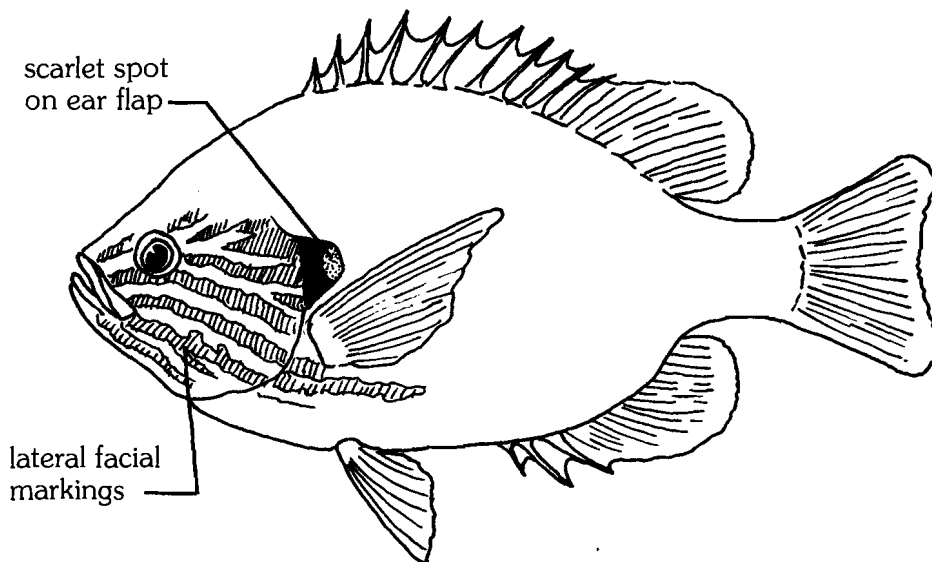


Figure 2. The pumpkinseed is a panfish that resembles the bluegill. (For additional information about the pumpkinseed, see the Pumpkinseed fact sheet).

## Distribution

A warmwater species, bluegills are at the northern most edge of their range in Wisconsin. Originally bluegills were not present in the Lake Superior drainage basin of northern Wisconsin but stocking programs have extended their range to include the entire state. Bluegills prefer quiet water so they are primarily a lake species, although they do live in wider, slow-moving streams and rivers.

Their range includes most of the eastern, central, southern and southwestern United States (Fig. 3).

## Habits and habitats

Some like it hot, and this includes bluegills. These heat-craving sunfish prefer water temperatures of 85 to 88 degrees Fahrenheit, and can tolerate temperatures up to 95 degrees. Their quest for warm water makes them particularly fond of shallow lakes and, especially in winter, attracts them to sources of warm-water discharge, such as power plants. In the spring they seek the warmth of slow-flowing streams or marshy channels that heat up sooner than lakes. While they like warm water, they avoid direct sun, preferring the cover of aquatic vegetation and submerged brush.

Bluegills generally stay together in small schools of 10 to 20 fish. They will congregate with other sunfish, such as pumpkinseed and smallmouth bass, as well as with minnows and darters. Bluegills tend to have a **home range** (an area within which they remain), especially during spawning. Bluegills removed from their normal haunts and released in another area have been observed swimming around as if looking for familiar landmarks.

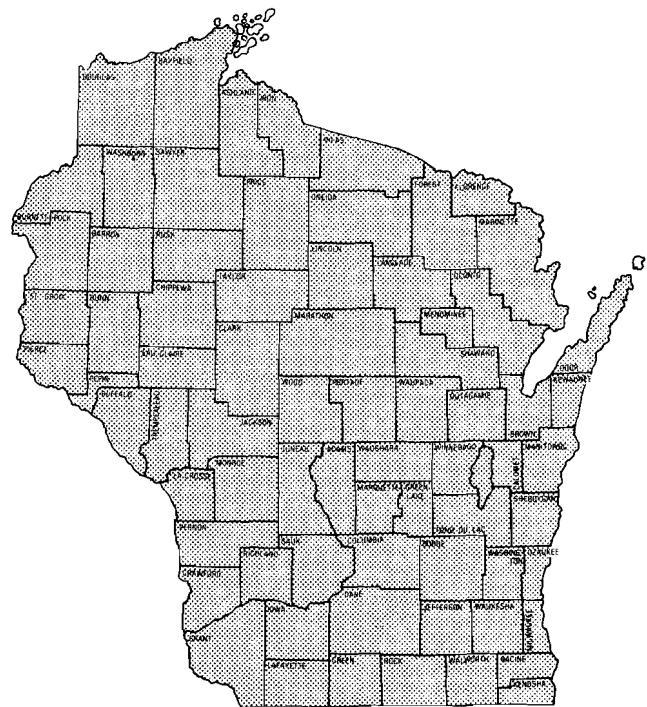
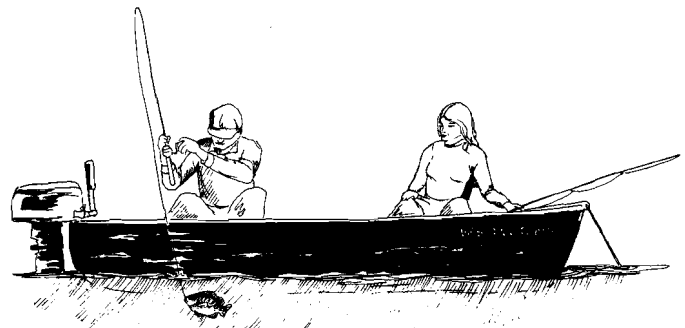


Figure 3. Generalized distribution of bluegill in Wisconsin.



Though their small mouths limit bluegills to small food, they still enjoy a diverse diet that includes algae, aquatic vegetation, zooplankton, insect larvae, insects, fish eggs and, occasionally, minnows and small fish. Bluegills are sight-feeders, moving around and grazing on anything that catches their eye. They don't have **canines** (large conical, sharply-pointed teeth), relying instead on brushlike bands of small teeth to nibble at food and long **gill rakers** (comblike structures in the gills) to capture and filter smaller free-floating food out of water. In late June and early July when mayflies and other insects are emerging and swimming on lake surfaces, bluegills will go to the surface and suck insects in, creating a "popping" sound that can be heard out of the water.

Bluegills feed primarily at dawn and dusk, though they will feed throughout the day. Feeding patterns vary greatly with the season as bluegills feed on whatever is available. During the summer when food is abundant bluegills may consume up to 35 percent of their own body weight weekly. In winter that rate can drop to 1 percent. Bluegills follow a daily migratory pattern that tends to bring them closer to shore at night and into open water during the day.

As **fingerlings** (small, immature fish) bluegills fall prey to a wide variety of species including northern pike, muskellunge, largemouth bass, yellow perch, crappie and even adult bluegills. However, by the time they are 2 to 3 years old they have grown too large for all but largemouth bass, northern pike and muskellunge. Beyond that age, their deep bodies help spare them from the jaws of even large predators.

Bluegills are intolerant of low oxygen levels and are among the first to die off from **winterkill** conditions (lack of oxygen in water under frozen lakes).

## Life cycle

Bluegills have elaborate reproductive behavior. Spawning begins with males moving into shallow waters in late spring, when the water temperature approaches 67 degrees Fahrenheit, to claim spawning grounds. Like other sunfish, bluegills build nests in which they deposit and fertilize eggs. The gregarious nature that has bluegills swimming in schools carries over to nest building. Males normally build nests in colonies in shallow sand or gravel beds. While the colonies can include up to 40 or 50 nests, each male vigorously defends his nests from competing male sunfish. Using its caudal tail like a broom, a male bluegill will sweep back and forth — holding its **pectoral** (side) fins straight out and pushing them forward to counter the forward locomotion of the caudal sweep — clearing away loose sand and gravel. Occasionally they will use their snouts to dislodge stubborn obstacles. These meticulous nest-builders keep up the sweeping action until they have excavated a saucer-shaped depression that is between 2 to 6 inches deep and up to a foot in diameter. When completed, the nest resembles an ancient, weathered crater — like those on the moon's surface. To the angler, the nests may look like groups of light spots on dark lake bottoms.

Females arrive after the nest is built and males greet them with energetic displays, called rim circling, in which they repeatedly swim in circles around their nests. They speed up as females approach, attempting to attract them into the nest. When a female enters a nest both fish swim around in circles within the nest until they come to a rest at a right angle with their bellies touching. The female then releases some eggs and the male releases some **milt** (sperm). A female may deposit eggs in more than one nest, and more than one female may use the same nest.



Figure 4. Bluegills nest in colonies.

Spawning peaks in June and may continue into August, although it normally ceases when water temperatures exceed 80 degrees Fahrenheit. Females can produce up to 25,000 or more eggs, though the average is probably closer to 12,000. Egg production increases with a female's age and size. Under normal weather conditions and optimum temperatures, eggs hatch in two to five days. One nest may produce up to 18,000 **fry** (newly hatched fish) that are about an inch long, though they grow rapidly. While females leave the nest immediately after spawning, males can truly be described as doting fathers. They tend the eggs, fanning them with their caudal fins to keep them aerated and free of debris. The protective father may even stay with the fry, guarding them for several days.

Bluegills grow the most in the first five years of life, though growth rates can vary depending on many factors, such as lake size and average water temperature. Under favorable conditions, bluegills reach an average length of 6-8 ounces. With excellent conditions, bluegills may grow to 9 inches and weigh from 12 ounces up to 1 pound. In lakes with stunted populations, bluegills may grow no larger than 4.5 inches and weigh only 2.5 ounces. The largest bluegill ever caught was a 15-inch, 4-pound, 12-ounce monster taken from Ketona Lake in Alabama in 1950. The Wisconsin record is a 2-pound, 9.8-ounce taken in 1995 from Green Bay in Brown County. Bluegills rarely live over 10 years (Fig. 6).

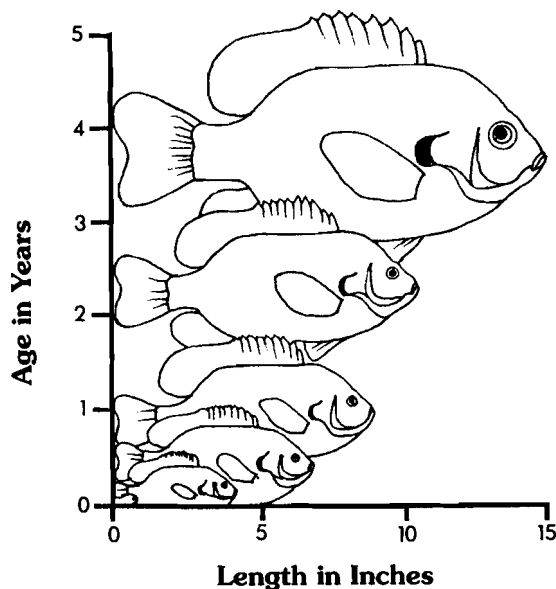


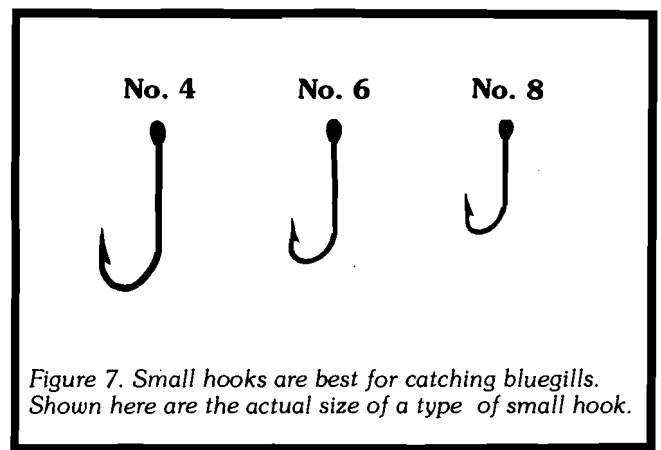
Figure 6. Bluegills grow the most in the first five years.



Figure 5. The male bluegill fans the sand and gravel with its tail to make its nest.

## Fishing for bluegills

No matter where you are in Wisconsin, you don't have to travel far to fish bluegill. Nor do you need special equipment or bait. With the exception of fast-moving streams, most bodies of water that support fish will contain bluegills. And bluegills are curious fish that seem to want to taste anything in front of them; they have even been known to nibble on swimmers' toes. At one time, cane poles long enough to reach the shallow spawning beds from shore were popular for bluegill fishing. Today, most anglers fish with light-weight rods and reels. During the summer, anglers will likely have the best luck fishing from a boat in water between 5 and 15 feet deep. Although worms are probably the most common bait, bluegills are not fussy and will bite at almost any small bait like insects, insect larvae or other invertebrates. Because of their small mouths, anglers should use small hooks (Fig. 7). Bluegills suck in their prey rather than striking at it, so a bobber helps signal a bite. Setting the hook at the first sign of a bite is usually successful as long as the bait and hook are small. Be prepared for a fight, though, as soon as the bluegill realizes it is hooked.



Fly-fishing for bluegills with either a wet or dry fly is at its best during insect hatches in late spring and early summer. During the winter, ice anglers usually have the best fishing among the weeds in deeper water. Ice anglers use short, light jig poles, light-weight line and small tear-shaped jigs. The small hooks are usually baited with grubs, which are the larvae of flying insects (Fig. 8).

Bluegills fall under the panfish category of Wisconsin fishing regulations, with no size limit and a liberal bag limit. Check current Guide to Wisconsin Hook and Line Fishing Regulations for more information.

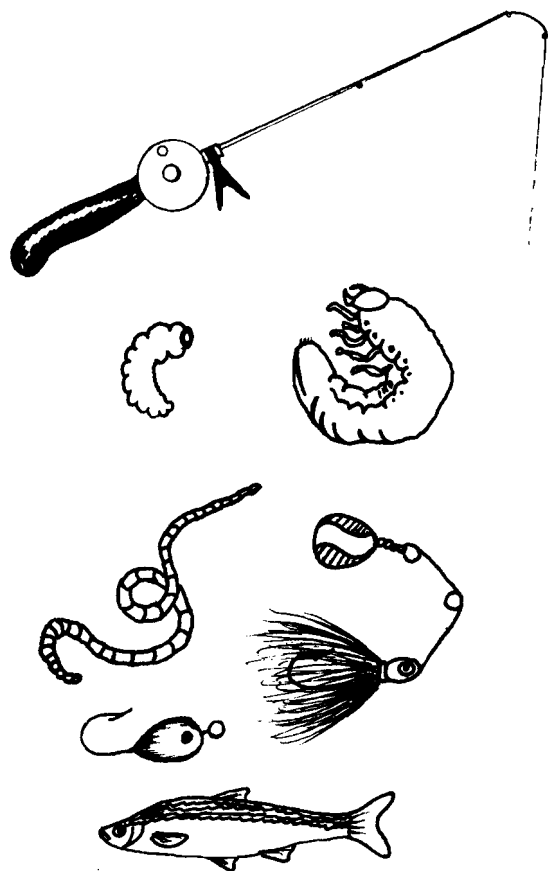


Figure 8. Jig poles are used for ice-fishing for bluegills. Grubs are an excellent bait.

## Management

Bluegill overpopulation, especially in small bodies of water that lack predator fish, often leads to stunted populations. Fish managers have experimented with different techniques to reduce bluegill populations, and in turn, increase fish size. Stocking predator fish in lakes with a stunted bluegill population has some success, but even stunted bluegills can be too large for predator fish if they are stocked as fingerlings. Establishing

predator populations in lakes that have experienced winterkill or that have been treated to remove stunted populations is more successful at preventing panfish populations from becoming stunted. Chemical treatment is highly effective but it eliminates all fish, including predators, and requires expensive restocking efforts.

A more recent technique is to draw down lakes before they freeze. This practice can: create winterkill conditions, reducing stunted populations; concentrate bluegills in the remaining water, making it easier for predators to prey on them; and freeze out aquatic vegetation that provides bluegills shelter from predators during the summer. Lake drawdowns usually require landowner agreement and can only take place where the water level is easily controlled.

## Environmental concerns

Stunted bluegill populations often occur in lakes that have abundant amounts of aquatic vegetation. The vegetation not only provides basic food sources for bluegills, the dense cover makes it difficult for predator fish to prey on them. Harvesting or chemically treating vegetation is costly and provides only a temporary remedy. A more long-term approach to controlling aquatic plant growth is to limit the nutrients that flow into lakes and rivers from sewage effluent, leaking septic systems and agricultural and lawn fertilizers.

Because bluegills are low on the aquatic food chain, have a low fat content and live relatively short lives, they do not accumulate toxic chemicals or metals in their flesh to the extent that larger, longer-living predator fish do.

## Additional reading

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